

10/562139
JC10 Rec'd PCT/PTO 23 DEC 2005
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q92302

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Appln. No.: National Stage Entry of PCT/JP2004/009452

Confirmation No.: Unknown

Group Art Unit: Unknown

Filed: December 23, 2005

Examiner: Unknown

For: DEVICE FOR GENERATING ELECTRICAL SIGNAL CORRESPONDING TO
CHANGE IN POSITION OR POSTURE

ARTICLE 19

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CLAIMS

1. A device for generating an electrical signal corresponding to a change in posture comprising:

5 a container (2) which is formed of an electrical insulating material and is tightly fixed to an electrode holder (1) formed of an electrical insulating material and in which a fluid dielectric (B) is sealed with a volume ratio sufficient to have an angle of inclination with respect to a free surface
10 of the fluid dielectric;

15 a plurality of pairs of peripheral electrodes (4) disposed at positions in such a way that each of said plurality of pairs of peripheral electrodes are symmetrical arranged perpendicular to the electrode holder in respect of a central point of a cross section of the container so as to be apart from an inner peripheral surface of the container with a predetermined interval therefrom; and

20 a pair of counter electrodes (3), being electrically insulated from each other, which are opposed each other along an imaginary line perpendicular from a central point of the cross section of the container, each of said pair of counter electrodes being perpendicular to an upper surface of the electrode holder, serving as a bottom of the container, or perpendicular to a lower surface of a ceiling part of the container,
25 characterized in that

an external voltage is applied to the pair of counter electrodes so that an electrical signal corresponding to a change in posture can be generated.

30 2. The device for generating an electrical signal corresponding to a change in posture according to claim 1, wherein each of

the counter electrodes (3) has a flat surface.

3. The device for generating an electrical signal corresponding to a change in posture according to claim 1 or 2, wherein each
5 of the peripheral electrodes (4) extends from the ceiling and the bottom, respectively, of the container (2), and has a nonconductive portion or is split in an axial direction thereof.

4. The device for generating an electrical signal corresponding
10 to a change in posture according to claim 3, wherein power supply electrodes integrally extend from the bottom to the ceiling of the container (2) instead of the counter electrodes (3).

15 5. A device for generating an electrical signal corresponding to a change in posture comprising:

a spherical container which is formed of an electrical insulating material and in which a plurality of electrodes, to which a voltage is applied and each has an arcuate surface,
20 are fixed to an inner peripheral surface thereof vertically symmetrically, a fluid dielectric being sealed therein with a volume ratio sufficient to have an angle of inclination with respect to a free surface of the fluid dielectric; and

a pair of counter electrodes which are electrically insulated from each other and are respectively disposed at a lower end portion and an upper end portion which share a segment passing through a central point of the spherical container, a voltage being applied to the pair of counter electrodes.

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6. A device for generating an electrical signal corresponding

to a change in posture comprising:

a polygonal container which is formed of an electrical insulating material and in which a plurality of electrodes each having a flat surface are fixed to an inner peripheral 5 surface thereof vertically symmetrically, a fluid dielectric being sealed therein with a volume ratio sufficient to have an angle of inclination with respect to a free surface of the fluid dielectric; and

10 a pair of counter electrodes which are electrically insulated from each other and are respectively disposed at mutually opposing portions of the container, a voltage being applied to the pair of counter electrodes.

15 7. The device for generating an electrical signal corresponding to a change in posture according to any one of claims 1 to 6, wherein a high frequency voltage is applied to an electrical-signal generating means for outputting a voltage corresponding to a difference in an developing electrostatic capacity ascribable to a difference in an area of contact with 20 the fluid dielectric between at least one pair of electrodes to which the voltage is applied in the container in which the fluid dielectric with a volume less than a content volume of the container is accommodated, frequency modulation corresponding to the inclination of the container is provided 25 for a carrier wave generated by a high frequency oscillator, and this signal is subjected to FM demodulation.

8. (Cancelled)

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9. (Cancelled)

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10. A device for generating an electrical signal corresponding
to a change in position or posture wherein the pair of the
devices for generating an electrical signal corresponding to
a change in posture according to any one of claims 1 to 3 are
30 respectively attached to both ends or spaced-apart midway
portions of a device for generating an electrical signal

corresponding to a change in position which comprises a hollow conductor, a conductor coated with an electrical insulating material and fitted in the hollow conductor, the conductor being linearly displaceable, means for applying a voltage across
5 the hollow conductor and the conductor coated with the electrical insulating material, and means for obtaining as an electrical signal a change in electrostatic capacity corresponding to an amount of insertion or pulling-out displacement between the hollow conductor and the conductor coated with the electrical
10 insulating material.

11. A device for generating an electrical signal corresponding to a change in position or posture wherein the pair of the devices for generating an electrical signal corresponding to
15 a change in posture according to any one of claims 1 to 3 are respectively attached to both ends or spaced-apart midway portions of a device for generating an electrical signal corresponding to a change in position which comprises a flexible hollow conductor, a flexible conductor coated with an electrical
20 insulating material and fitted in the hollow conductor, the flexible conductor being linearly displaceable in an axial direction, means for applying a voltage across the flexible hollow conductor and the flexible conductor coated with the electrical insulating material, and means for obtaining as
25 an electrical signal a change in electrostatic capacity corresponding to an amount of insertion or pulling-out displacement between the flexible hollow conductor and the flexible conductor coated with the electrical insulating material.

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12. (Cancelled)